Installation manual

Jet nozzles, Type TJN

TROX® TECHNIK

The art of handling air

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1 General information

This installation manual describes the installation of TJN jet nozzles.

To ensure complete functioning it is essential to read the provided installation manual before starting any work, and to comply with it.

The manufacturer does not accept any liability for any malfunction or damage resulting from non-compliance with this manual or non-compliance with relevant statutory regulations.

Qualified staff

Expert

Due to their training and knowledge of relevant standards and regulations, experts are qualified to perform the following work and to recognise and avoid any potential risks.

- Installation
- Functional test

Symbols used in this manual

Danger!
Designates danger to life and limb due to electrical voltage.

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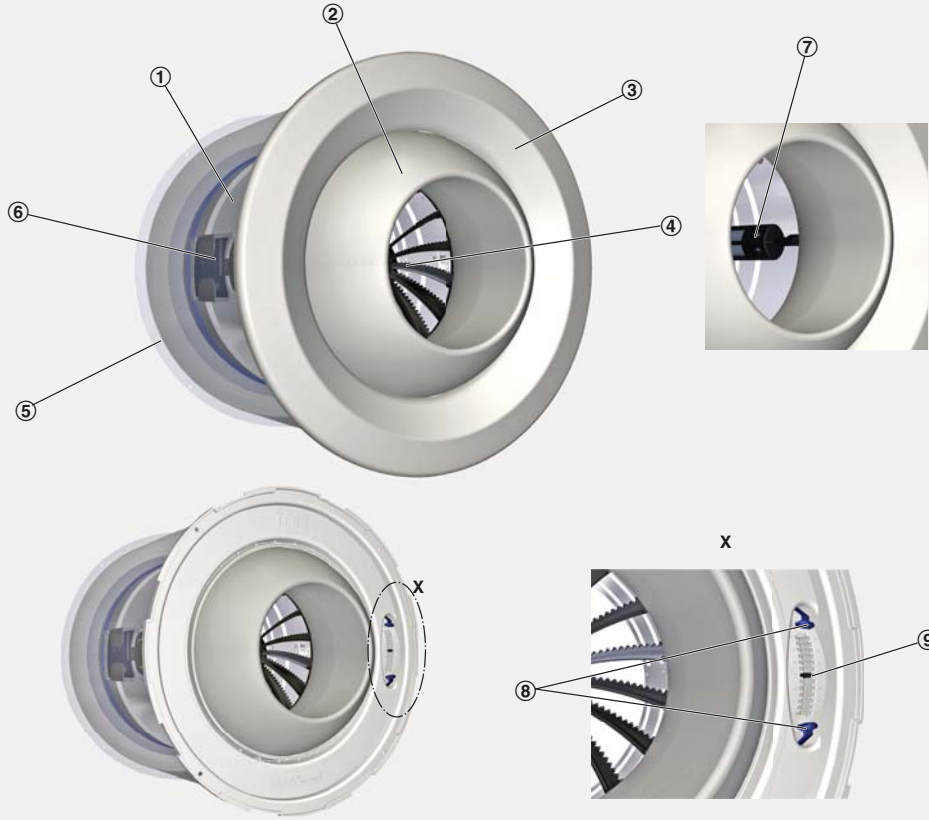
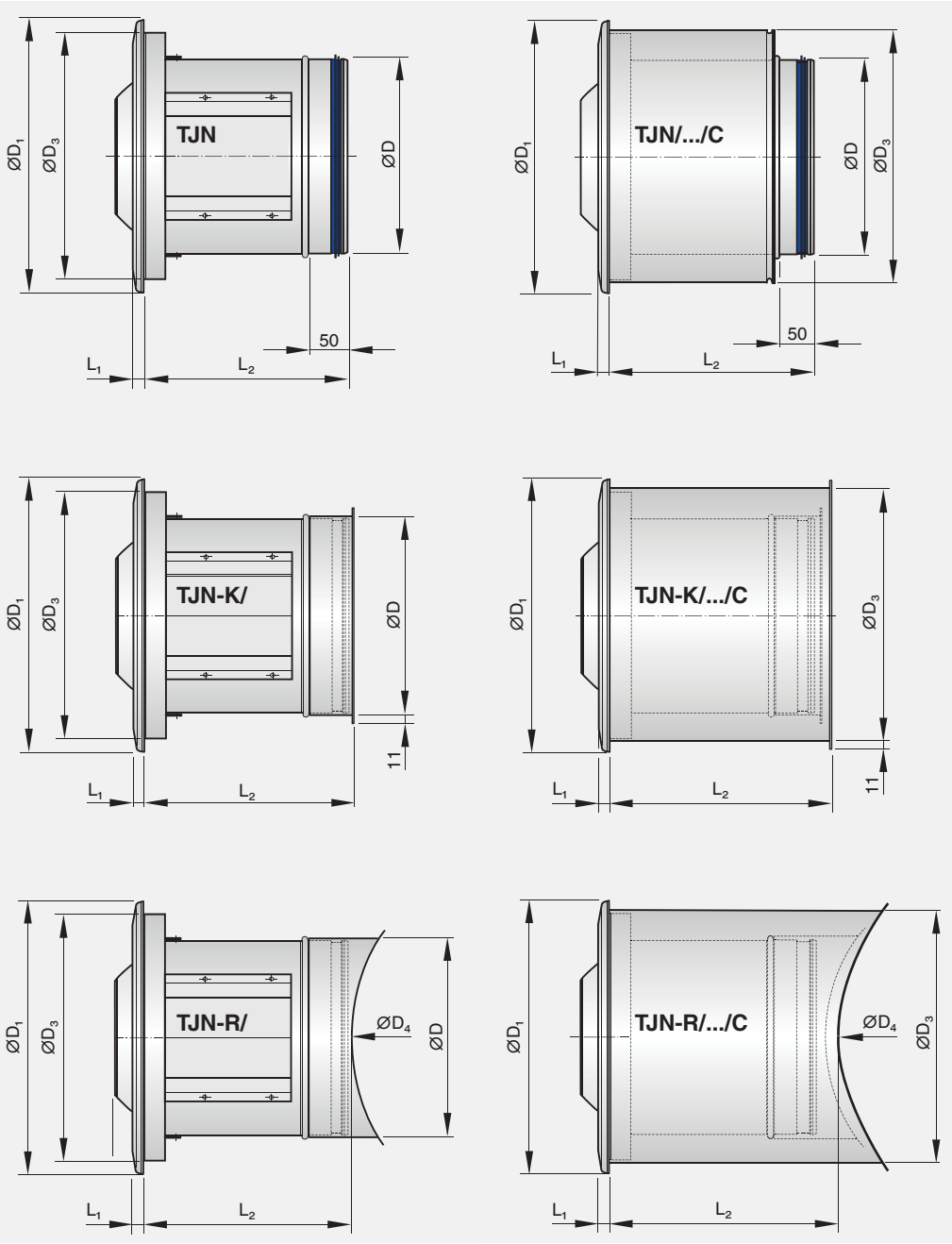
2 Product overview



① Spherical nozzle casing
② Nozzle
③ Trim ring
④ Swirl unit and cap (an option in case of throw distance reduction)
⑤ Outer casing (option)
⑥ Electric actuator (option)
⑦ Thermal actuator T1 (option)
⑧ Travel stops (adjustable)
⑨ Position indicator

3 Constructions, dimensions and weight



3 Constructions, dimensions and weight

Dimensions [mm]												
NG	ØD	$ØD_1$	$ØD_3$	L_1	L_2							
					TJN TJN/.../C	TJN-K TJN-R	TJN-K /.../C	TJN-R /.../C	TJN-T1	TJN-R-T1 TJN-K-T1	TJN-K-T1/.../C	TJN-R-T1/.../C
160	158	258	227	15	242	248	258	261	302	308	318	321
200	198	298	263	14	250	257	267	270	310	317	327	330
250	248	348	315	14	260	265	276	279	320	325	336	339
315	313	413	379	15	275	281	291	294	335	341	351	354
400	398	501	468	16	285	292	302	305	345	352	362	365

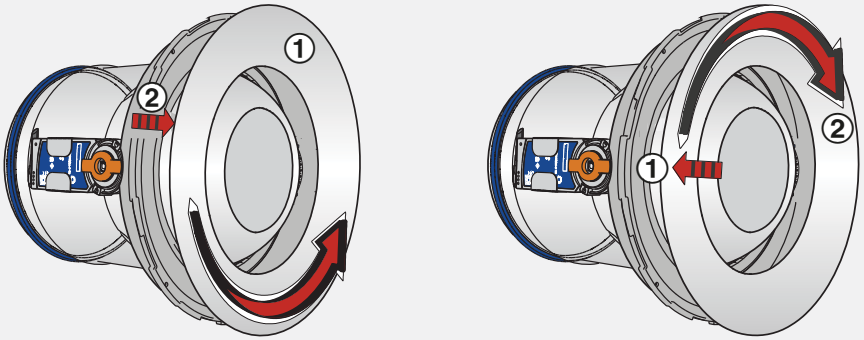
ØD4: Diameter of the circular duct, according to order details

Weight [kg] TJN – manual adjustment / actuator E7, E8, E9						
Nominal size	TJN	TJN-K TJN-R	TJN/.../C	TJN-K/.../C TJN-R/.../C	Actuator (E7, E8, E9)	Swirl unit
160	1.9	2.1	2.7	3.5	0.2	0.2
200	2.3	3.2	3.4	4.3		
250	3.1	3.4	4.4	5.5		0.3
315	4.0	4.6	5.8	7.2		
400	4.6	6.5	8.0	9.9		0.4

Weight [kg] TJN with actuator T1						
Nominal size	TJN	TJN-K TJN-R	TJN/.../C	TJN-K/.../C TJN-R/.../C	Actuator (T1)	Swirl unit
160	2.1	2.3	3.2	4.0	0.15	0.2
200	2.6	3.5	4.0	4.9		
250	3.5	3.8	5.1	6.2		0.3
315	4.5	5.1	6.7	8.1	0.3	
400	5.2	7.1	9.2	11.1		0.4

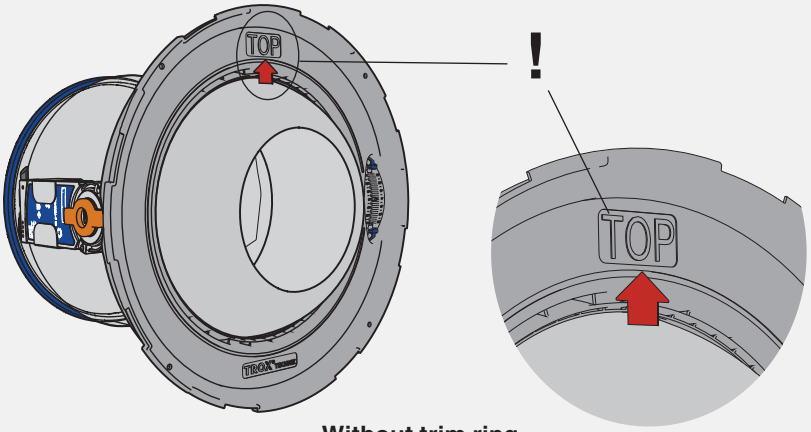
4 Installation

Removing the trim ring



open close

Alignment

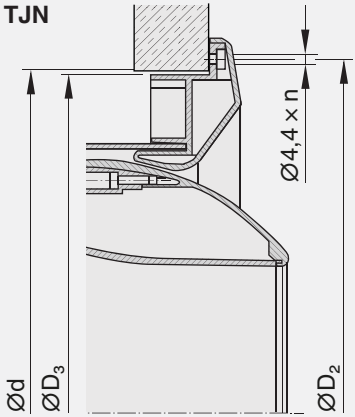


Without trim ring

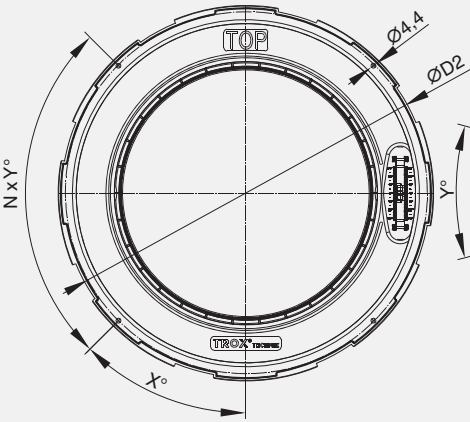
4 Installation

Wall installation

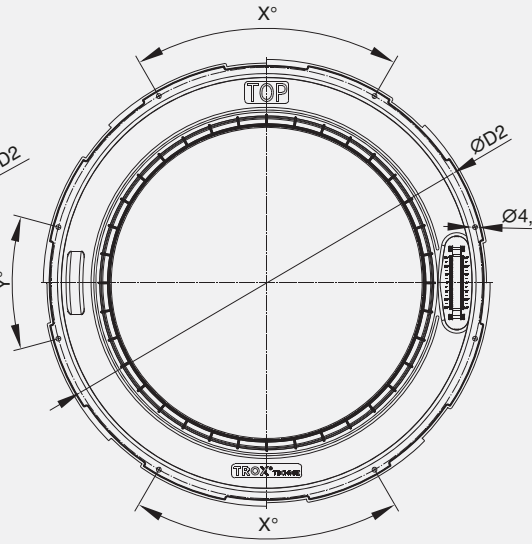
TJN



NW Ø160-250



NW Ø315-400

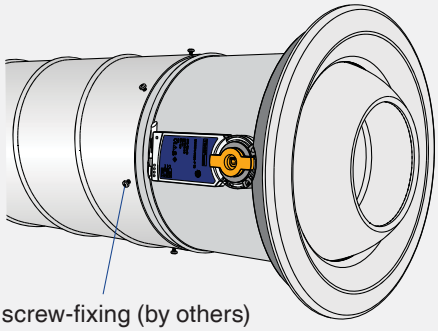


NW	ØD$_2$	ØD$_3$	Ød	X	Y	n
160	238.5	227	229	0	72	5
200	278.5	263	266	30	60	4
250	330	315	318	45	90	4
315	393	379	382	60	30	8
400	481	468	470	60	30	8

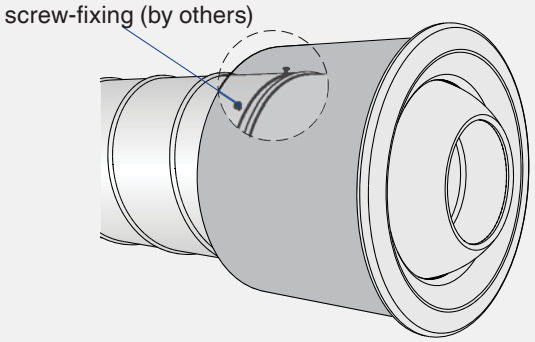
4 Installation

Circular duct

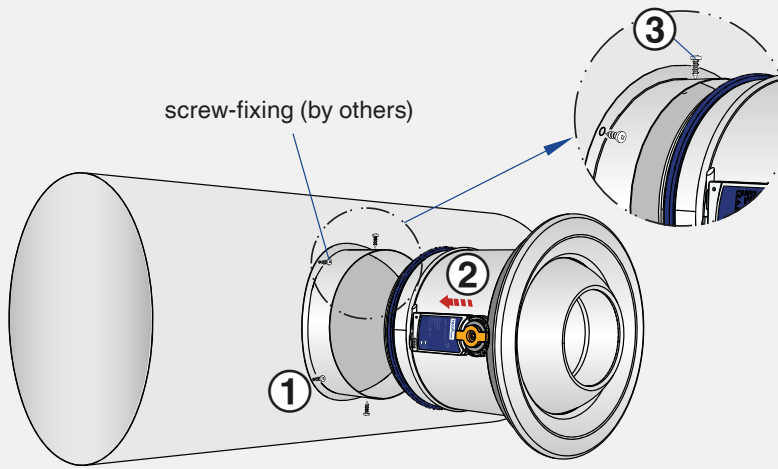
TJN



TJN/.../C

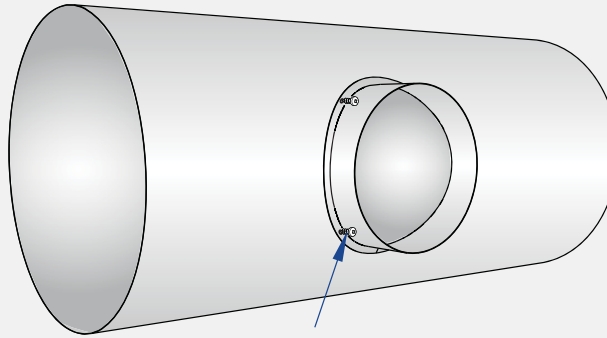


TJN-R

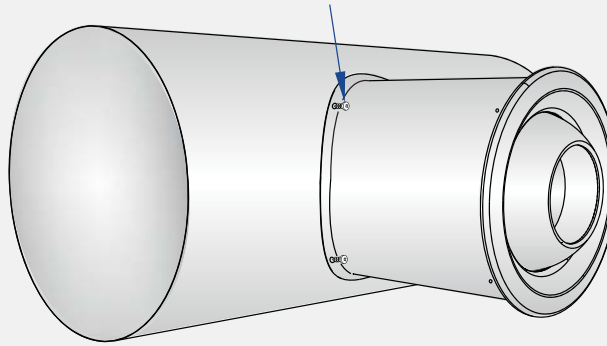


Without outer casing

TJN-R/.../C



screw-fixing (by others)

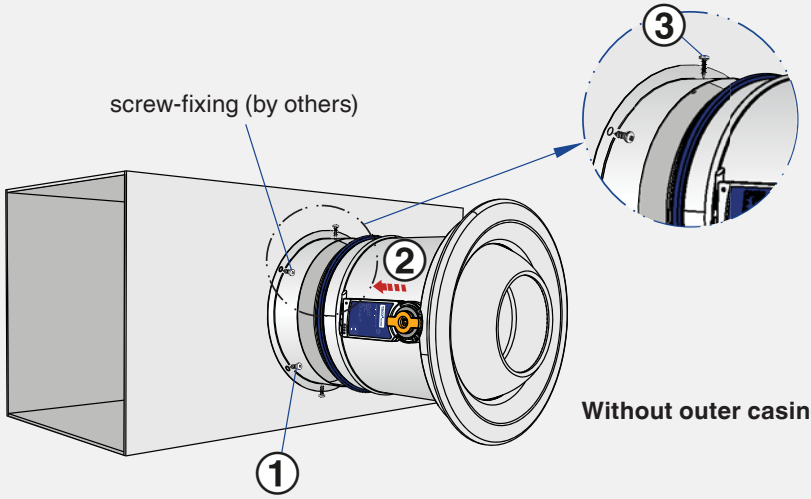


With outer casing

4 Installation

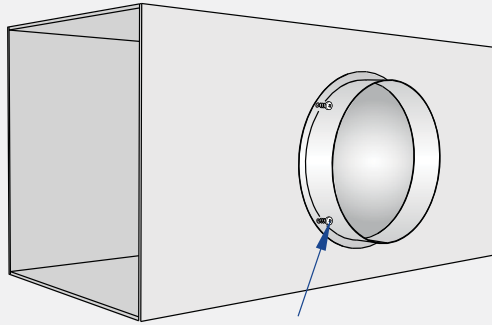
Rectangular duct

TJN-K

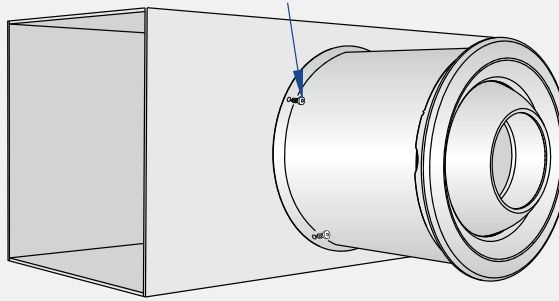


Without outer casing

TJN-K/.../C



screw-fixing (by others)

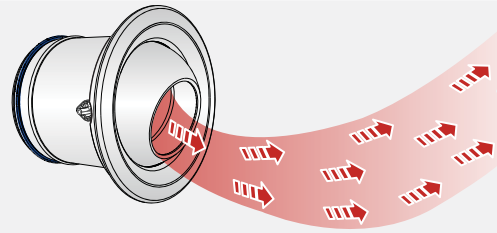


With outer casing

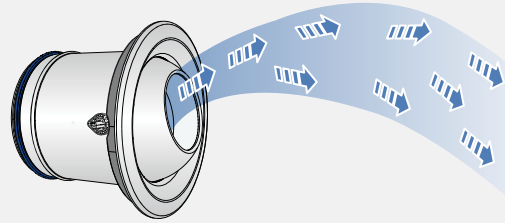
5 Setting the travel stops (swivel angle)

Operating modes

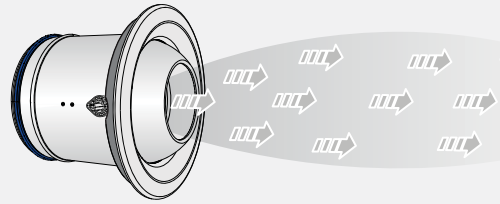
Heating



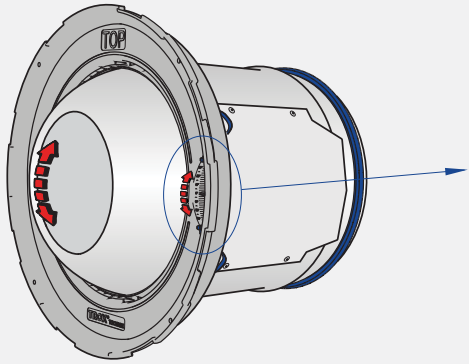
Cooling



Isothermal

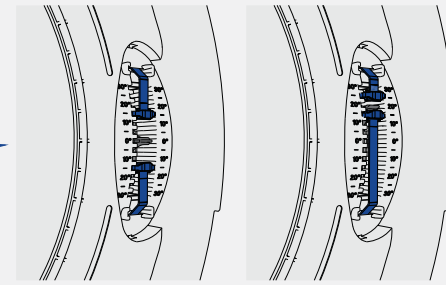


TJN and TJN/.../T1



Flexible swivel angle

Fixed swivel angle



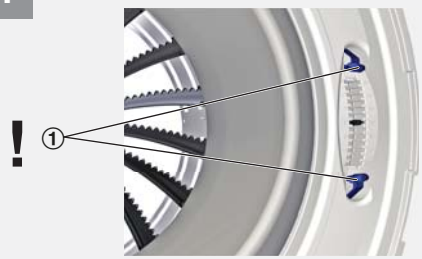
∢ ± 30°

Fixing a swivel angle (manual adjustment) or setting the travel stops for TJN/.../T1 with thermal actuator

5 Setting the travel stops (swivel angle)

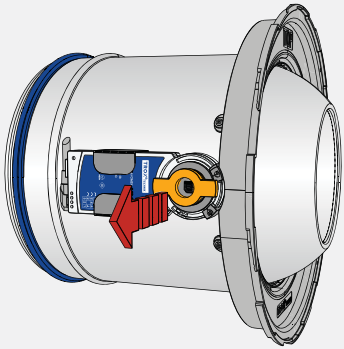
TJN-...-E...-...

1

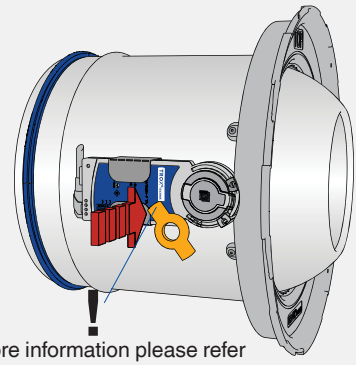


① Travel stop positions for TJN...-E...

2

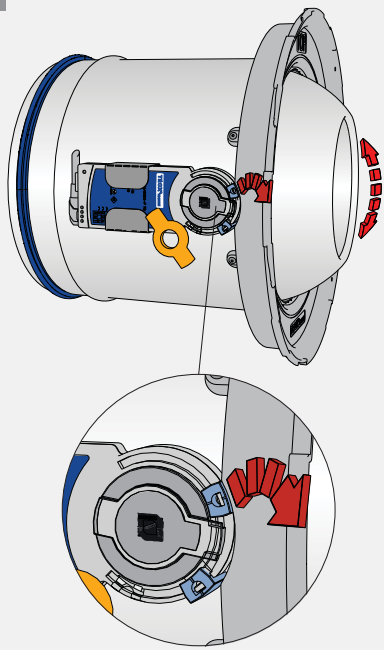


3



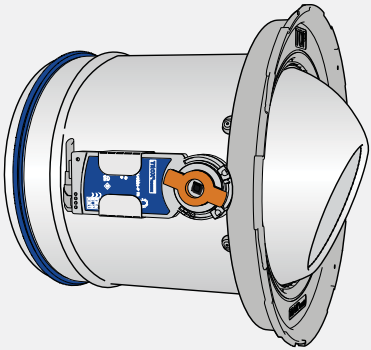
For more information please refer to the actuator installation manual.

4



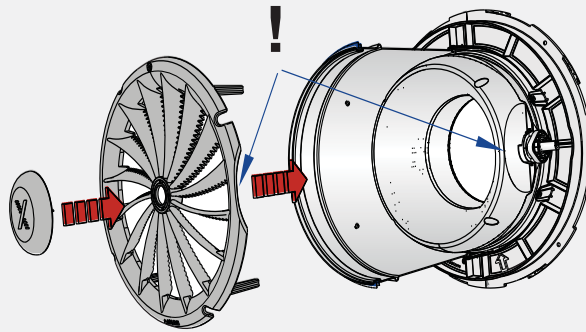
0 ... ±30°

5



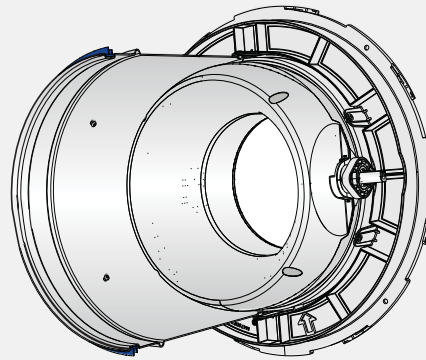
6 Throw distance reduction

TJN-...-D...-...

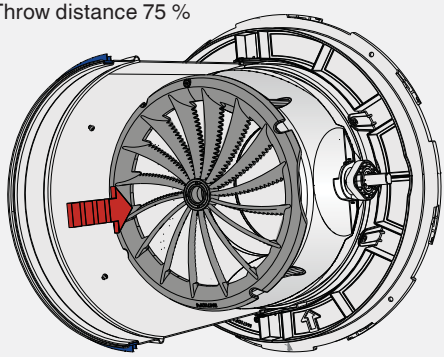


Reducing the throw distance at a later stage is not possible for TJN with thermal actuator (T1).

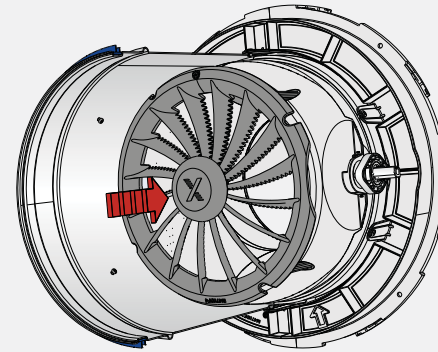
Throw distance 100 %



Throw distance 75 %



Throw distance 65 %



7 Electric actuators

TJN-...-E...-...

General information

Danger
Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.
- For any wiring work follow the national regulations and guidelines for electrical installation.

Note
When demounting nozzles with an outer casing (TJN-...-E) detach the cable bushing.

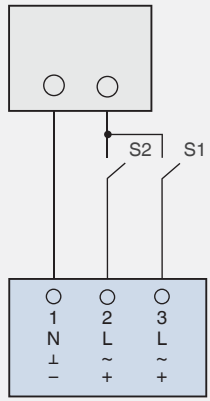
Connection data

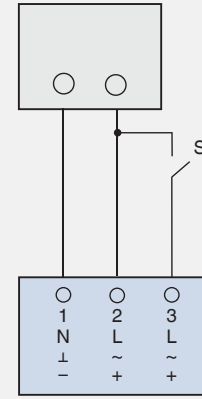
Designation	-E7	-E8	-E9
Type	**CM230-F.1 TR**	**CM24-F.1 TR**	**CM24-SX-FTR**
Nominal voltage	AC 100 … 240 V 50/60 Hz	AC 24 V 50/60 Hz DC 24 V	AC 24 V 50/60 Hz DC 24 V
Operating range	–	–	DC 2 … 10 V
Functional range	AC 85 … 265 V	AC / DC 19.2 … 28.8 V	–
Position feedback	–	–	DC 2 … 10 V
Control input signal	–	–	DC 0 … 10 V
Power consumption			
Operation	1.5 W for nominal torque	0.5 W for nominal torque	1 W for nominal torque
Idle position	1 W	0.2 W	0 5 W
Rating	3 VA	1.0 VA	1.5 VA
Torque (nominal torque)	at least 2 Nm with nominal voltage	at least 2 Nm with nominal voltage	at least 2 Nm with nominal voltage
Manual adjustment	Gear release with magnet	Gear release with magnet	Gear release with magnet
Rotation angle	–	–	restricted by two mechanical travel stops
Rotation angle without restriction	unrestricted	unrestricted	–
Rotation angle with restriction	315° (fixed) or 0 ... 287.5°, restricted by travel stops, adjustable in increments of 2.5°	315° (fixed) or 0 ... 287.5°, restricted by travel stops, adjustable in increments of 2.5°	–
Running time	75 s / 90°	75 s / 90°	75 s / 90°
Damper movement	Positive lock connection, 10 mm	Positive lock connection, 10 mm	Positive lock connection, 10 mm
IEC protection class	II (protective insulation)	III (protective extra-low voltage)	III (protective extra-low voltage)
IP protection level	IP54 for all installation positions	IP54 for all installation positions	IP54 for all installation positions
Weight	Approx. 130 g	Approx. 130 g	Approx. 185 g
Position indicator	mechanical attachment (including magnet for gear release)	mechanical attachment (including magnet for gear release)	mechanical attachment
Connection	1 m cable, 3 x 0.75 mm^2	1 m cable, 3 x 0.75 mm^2	1 m cable, 4 x 0.75 mm^2

7 Electric actuators

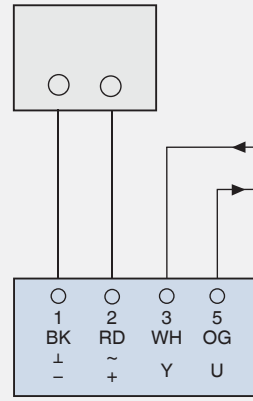
Connection examples

TJN/.../E7
TJN/.../E8





TJN/.../E9



8 Thermal actuator

Note
The thermal actuator (T1) applies only a low mechanical force to move the jet nozzle.

This is why particular care must be taken when installing the jet nozzle.

Contamination, e.g. dust, or exercising any tension can adversely affect its function.

Swivel angle

The smallest and largest swivel angles are reached with supply air temperatures of ≤ 18 °C and ≥ 30 °C, respectively.

Installation details

The jet nozzle must be correctly aligned for installation, as shown on p. 6, bottom.

Incorrect alignment may impair the function.

A 'standard' jet nozzle cannot be retrofitted with a thermal actuator unit at a later stage since a thermal actuator requires a casing that is 60 mm longer.

Jet nozzles with thermal actuator may be factory fitted with a swirl unit (option) but it is not possible to retrofit a swirl unit at a later stage.

Removing the factory mounted swirl unit may impair the function of the jet nozzle.